SCANCELL

A NEW FRONTIER IN IMMUNO-ONCOLOGY

CHINA HEALTHCARE SUMMIT 2018
SHANGHAI

LSE: SCLP.L

DR RICHARD GOODFELLOW
FOUNDER, BOARD DIRECTOR
AND FORMER CEO

November 2018

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DIFFERENTIATED IMMUNO-ONCOLOGY CLINICAL STAGE OPPORTUNITY

COMPANY FACTS AND FIGURES

- Founders Prof Lindy Durrant and Dr Richard Goodfellow
- Corporate office based in Oxford, UK
- 23 employees (10 PhD's)
- AIM listed (SCLP)

PROPRIETARY TECHNOLOGY PLATFORMS

- Novel immunogenic antigens and modulation mechanisms that stimulate potent T-cell responses for the treatment or prevention of cancer
- Unique mode of action of **IMMUNOBODY®** and **MODITOPE®** immunotherapies stimulate immune responses by presenting cancer antigens to trigger potent killer T-cell activation

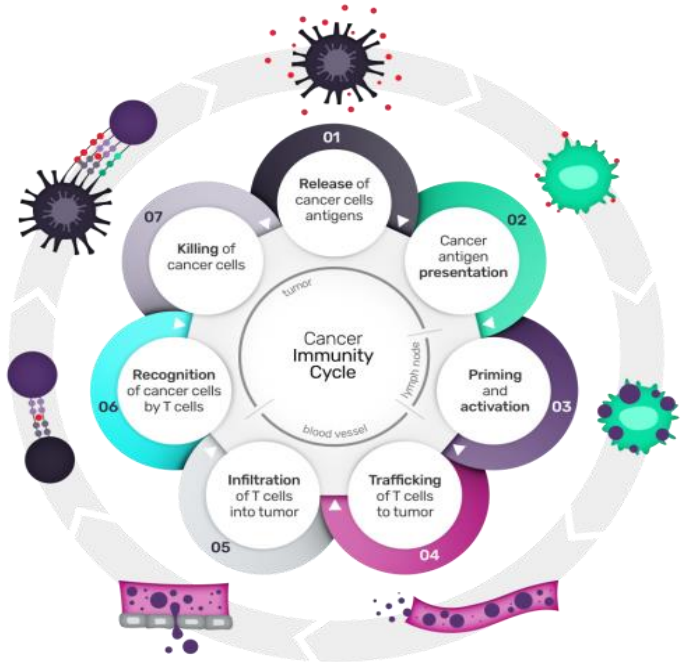
CLINICAL STAGE COMPANY

- Four lead products in development
- Lead product has completed a Phase1/2 study in melanoma
- Further clinical studies in preparation targeting multiple cancer indications

2 PLATFORMS, 4 LEAD PRODUCTS + MULTIPLE CANCER INDICATIONS

MEETING THE NEED FOR EFFECTIVE THERAPEUTIC CANCER VACCINES

- Key challenge is to stimulate an effective T cell response to reject or kill the growing tumour
- Most vaccine strategies only stimulate low frequency, low avidity T cell responses that fail to control tumour growth
- Scancell's novel therapies stimulate **high avidity** CD8 and/or CD4 T-cells that efficiently kill tumours



Ref: Chen and Mellman 2013

TWO DIFFERENTIATED PLATFORMS

IMMUNOBODY®

- DNA-based platform generates high avidity CD8 T-cells by presenting T-cell epitopes of known cancer antigens through a unique dual mode of action

MODITOPE®

- Modified peptides that generate potent killer CD4 T-cells to target antigens induced by stress-induced post-translational modifications (siPTM vaccines)

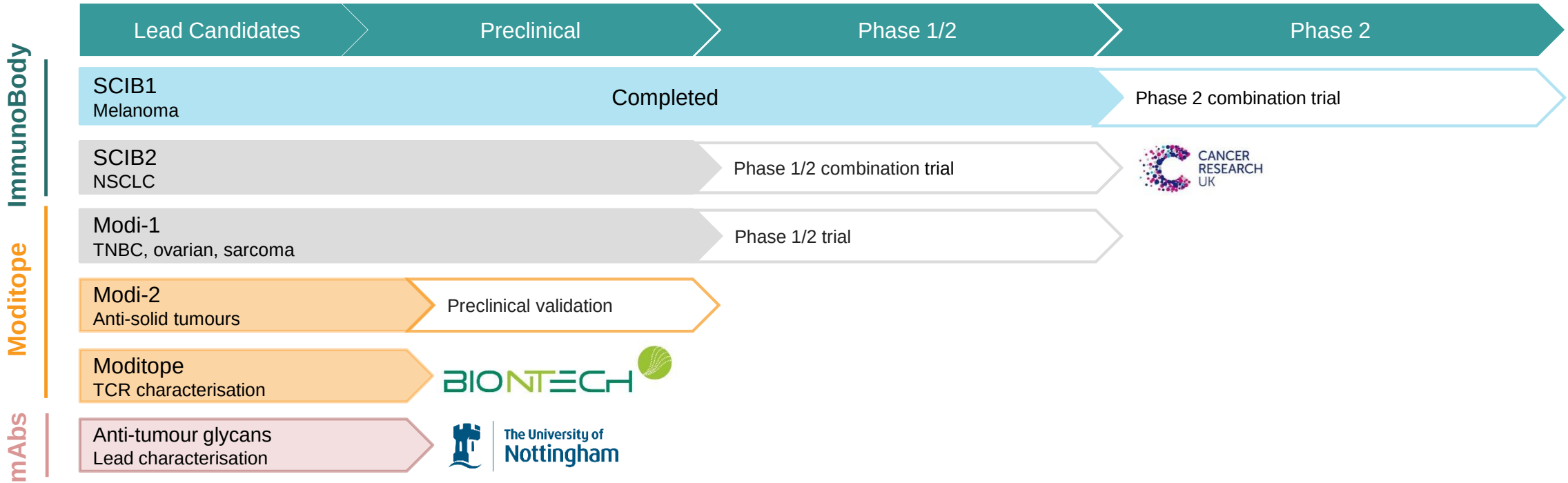
DEVELOPMENT PIPELINE

IMMUNOBODY®

- **SCIB1:** Targets malignant melanoma. Phase 1/2 study completed with strong survival data. Phase 2 combination trial with immune checkpoint inhibitor starting 1H19.
- **SCIB2:** Targets NSCLC. Phase 1/2 combination trial with immune checkpoint inhibitor to be funded and sponsored by Cancer Research UK (CRUK).

MODITOPE®

- **Modi-1:** Manufacturing process development initiated. Phase 1/2 trial in TNBC, ovarian and sarcoma planned for 2019.
- **Modi-2:** Targets multiple solid tumours. In preclinical development.
- **TCR collaboration:** To clone and characterise T cell receptors against Modi-1 specific epitopes.

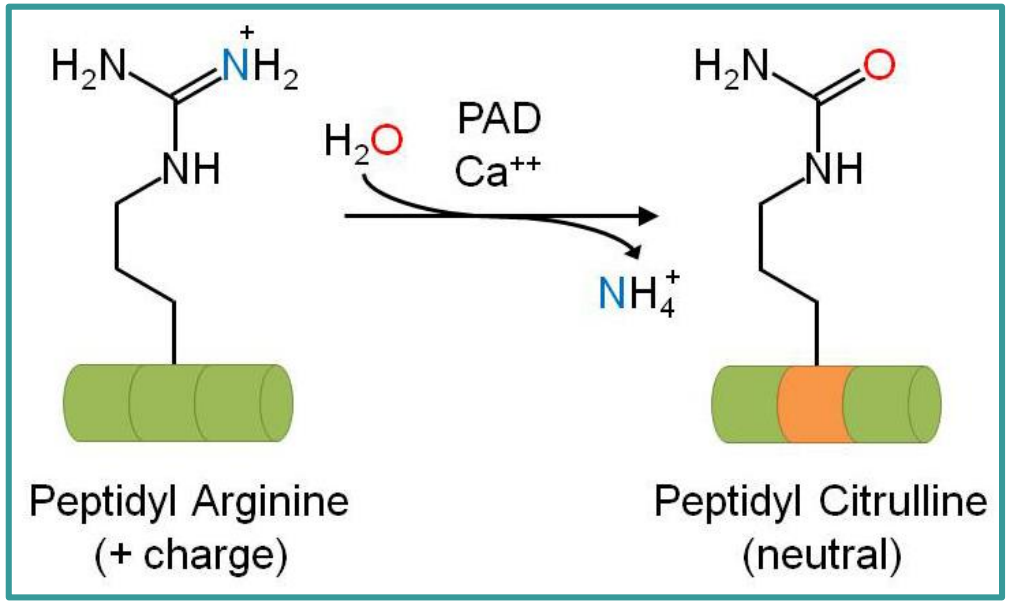


THE MODITOPE® PLATFORM

A NOVEL IMMUNOTHERAPY THAT OVERCOMES IMMUNOSUPPRESSION AND DELIVERS UNPRECEDENTED KILLER T-HELPER CELL RESPONSES

Stress-Induced Post-translational Modifications siPTM

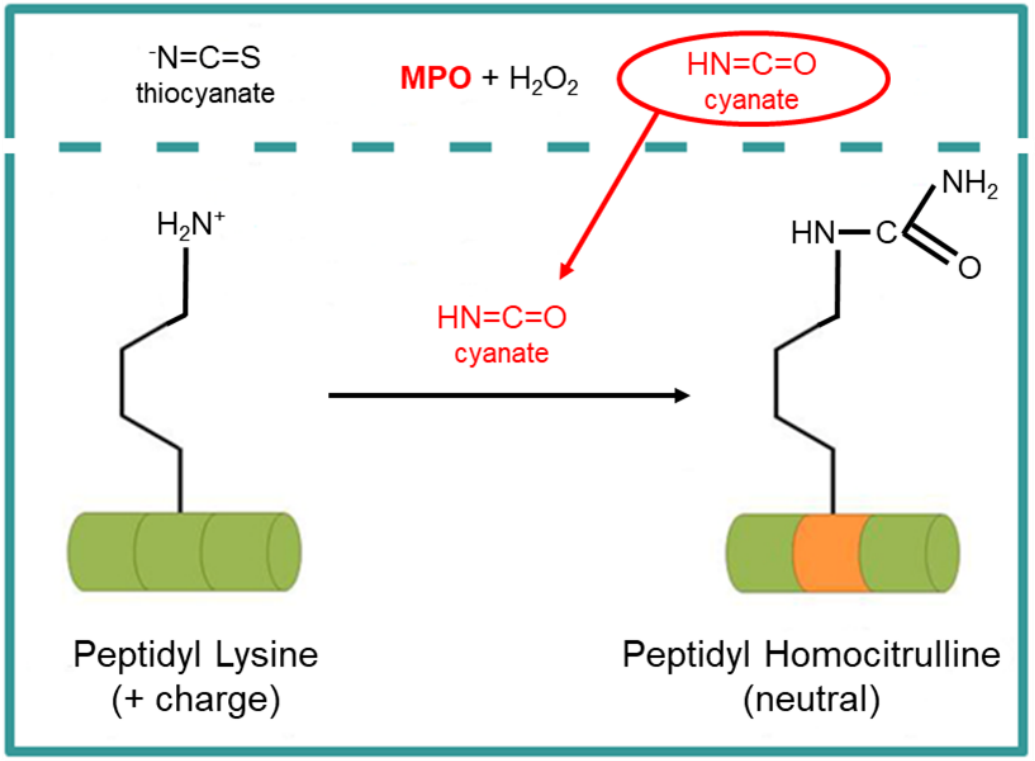
- One such modification involves the process of **CITRULLINATION**
  - *Involves the alteration of proteins due to enzymatic conversion of arginine residues to citrulline*
  - *Citrullination occurs as a result of a degradation and 'recycling' process called **autophagy** that is induced in stressed cells, including cancer cells*



PAD = peptidylarginine deiminase

- The Moditope® platform is based on exploiting this normal immune response to stressed cells, which is largely mediated by cytotoxic CD4 T cells
- The novelty of the technology is harnessing this mechanism to eradicate tumour cells by immunizing with citrullinated peptides
- **Patent awarded in Europe, Japan, China, Australia; for any citrullinated peptide for the treatment of cancer**

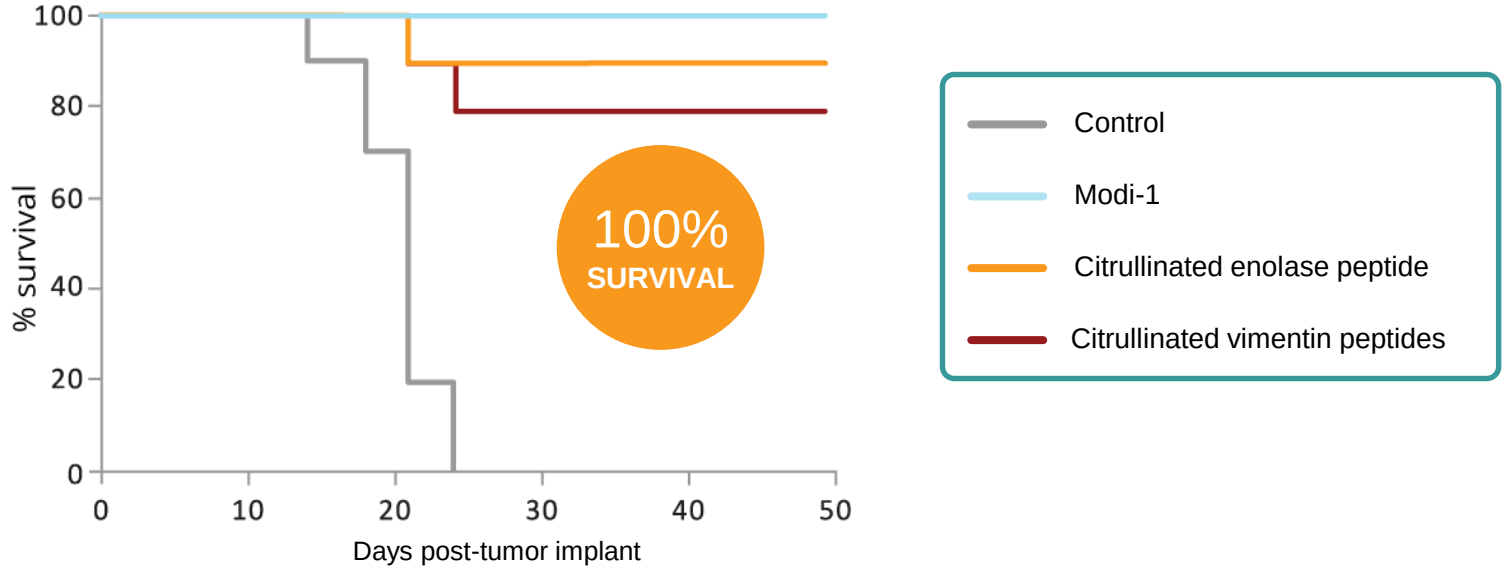
- Second siPTM involves the process of **HOMOCITRULLINATION**
  - the alteration of proteins due to non-enzymatic conversion of lysine residues to homocitrulline
  - Homocitrullination occurs as a result of MPO released by myeloid-derived suppressor cells (MDSC) which converts thiocyanate to cyanate in the presence of H_2O_2
  - Cyanate diffuses into tumour cells and results in spontaneous homocitrullination of cytoplasmic proteins
  - These proteins are degraded during **autophagy** and homocitrullinated epitopes presented on **MHC class II**
  - Patent filed with broad claims in cancer and composition of matter for any use of homocitrullinated peptides



MPO = myeloperoxidase

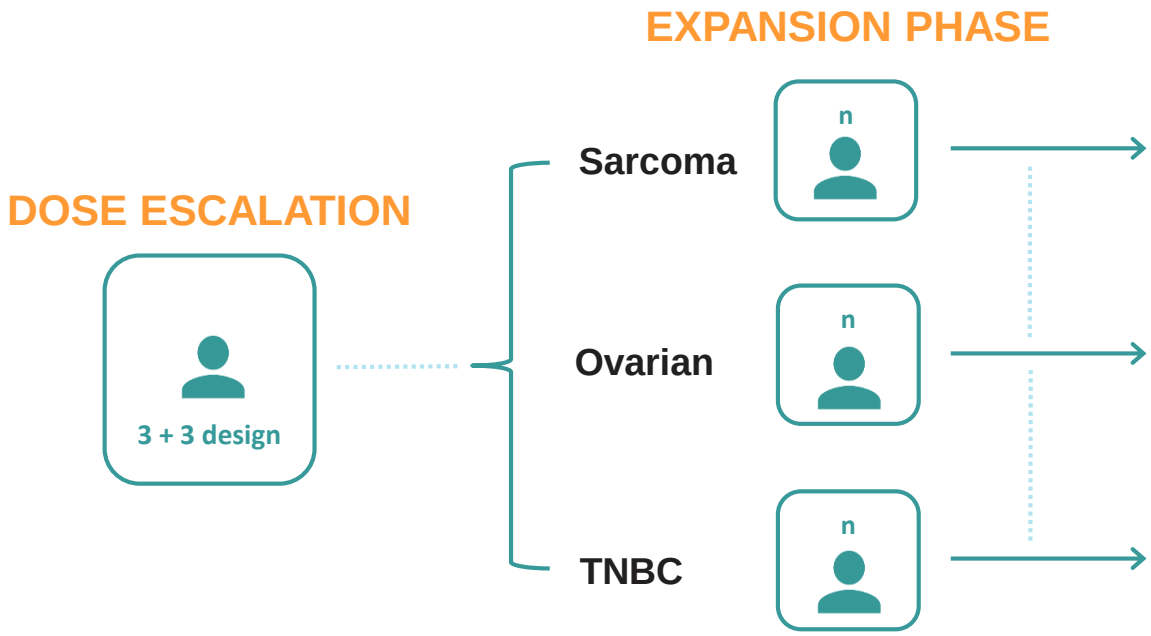
Modi-1

- Consists of:
  - Two citrullinated vimentin peptides (Vim-1 and Vim-2)
  - One citrullinated enolase peptide (Eno-1)
- Vimentin and enolase targets are highly expressed in triple negative breast cancer (TNBC) (90%), ovarian cancer (95%), and sarcoma (100%) - all with high unmet medical need
- Modi-1 induced potent anti-tumour responses
- Covalent linkage to Amplivant® (TLR-2 ligand as adjuvant) increases potency 100-fold
- **A single immunization of Modi-1 resulted in a 100% survival rate in animal models**



PATIENT POPULATION

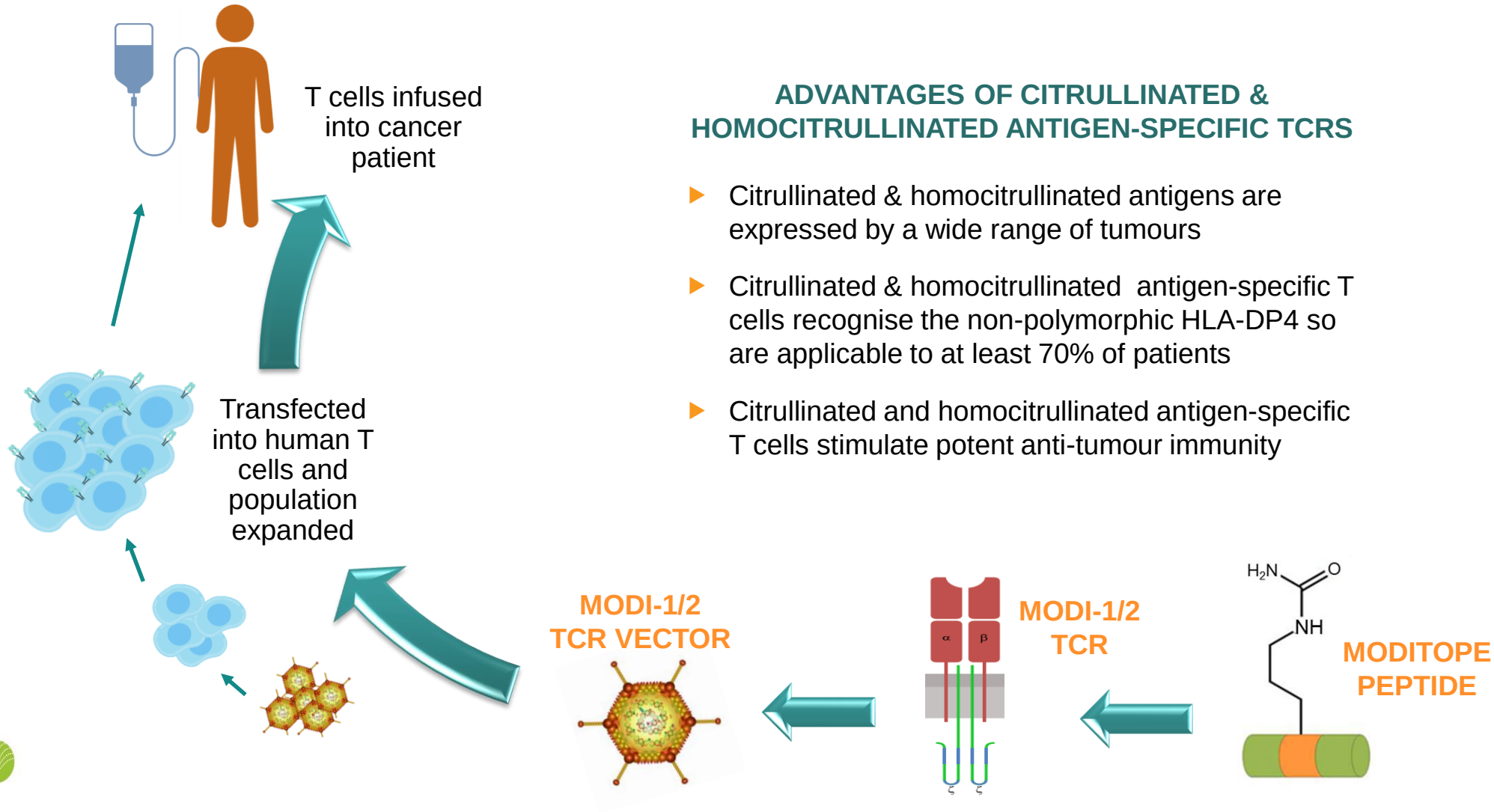
- Patients with tumours with high vimentin or enolase expression (e.g., sarcoma, triple negative breast cancer, ovarian)
- Failed or intolerant to standard of care therapies



Dosing regime

Dose escalation: 10, 50, 250 µg
Weeks 1, 3, 6, 12 and 24
Patients may continue to receive Modi-1 at 12-week intervals up to 2 years

MODITOPE® TCR RESEARCH COLLABORATION



ADVANTAGES OF CITRULLINATED & HOMOCITRULLINATED ANTIGEN-SPECIFIC TCRS

- Citrullinated & homocitrullinated antigens are expressed by a wide range of tumours
- Citrullinated & homocitrullinated antigen-specific T cells recognise the non-polymorphic HLA-DP4 so are applicable to at least 70% of patients
- Citrullinated and homocitrullinated antigen-specific T cells stimulate potent anti-tumour immunity

BIONTECH

MODITOPE MILESTONES

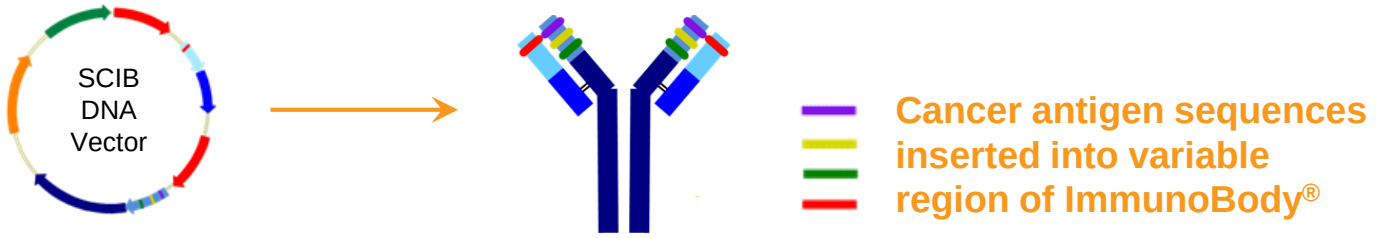
EXTERNAL VALIDATION OF MODITOPE® PLATFORM
INTERNAL PROJECTS ADVANCED AND EXPANDED

MODITOPE®

- Research collaboration to develop T-cell based therapies established with BioNTech
- License agreed with ISA Pharmaceuticals for development of Amplivant® Modi-1 conjugate therapy
- GMP manufacturer contracted for production of Modi-1/Amplivant® conjugate
- Modi-1 clinical study expected to start in CY19
- Homocitrullinated peptides under evaluation for inclusion in new Modi-2 vaccine targeting multiple solid tumours
- Strong Patent protection
- Shortlisted for CRUK Grand Challenge award;

THE IMMUNOBODY® PLATFORM

- Proprietary patent protected platform
- Several cancer associated T cell epitopes are engineered into a human antibody framework to make a genetic antigen/antibody complex
- Delivered as a DNA plasmid using electroporation



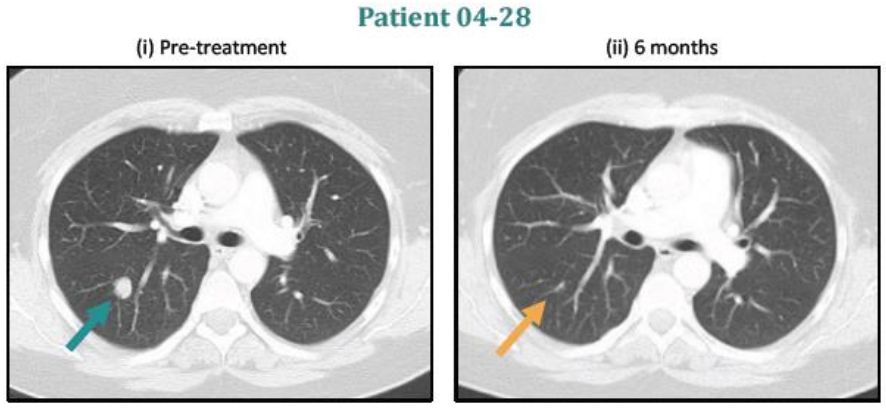
- Nano-vesicle delivery under evaluation
- Novel dual mechanism of action based on **direct** and **cross-presentation**
- SCIB1 for melanoma (**TRP-2/gp100 melanoma associated antigens**): Phase 1/2 clinical trial complete, Phase 2 planned
- SCIB2 for lung cancer (**NY-ESO-1**): Clinical development partnership with CRUK

SCIB1 IN PATIENTS WITH MELANOMA

SCIB1 has an excellent safety profile with no dose-limiting toxicities and no serious adverse events related to study drug or delivery device

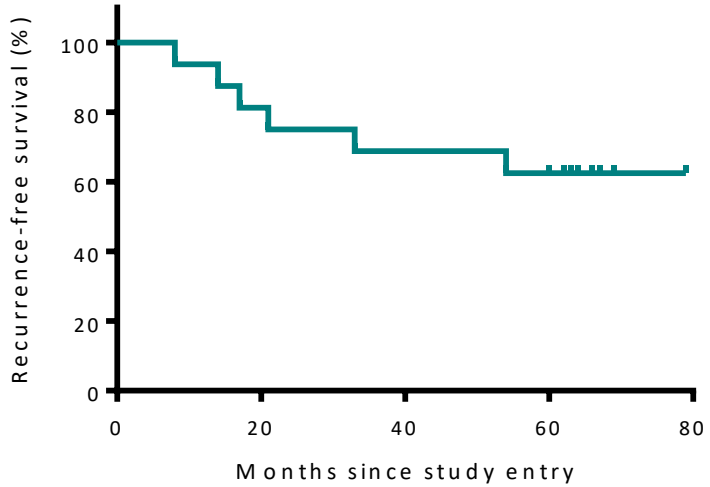
TUMOUR RESPONSE

Patient with tumour received 8 mg SCIB1 and showed a marked reduction in size of detectable lung lesions

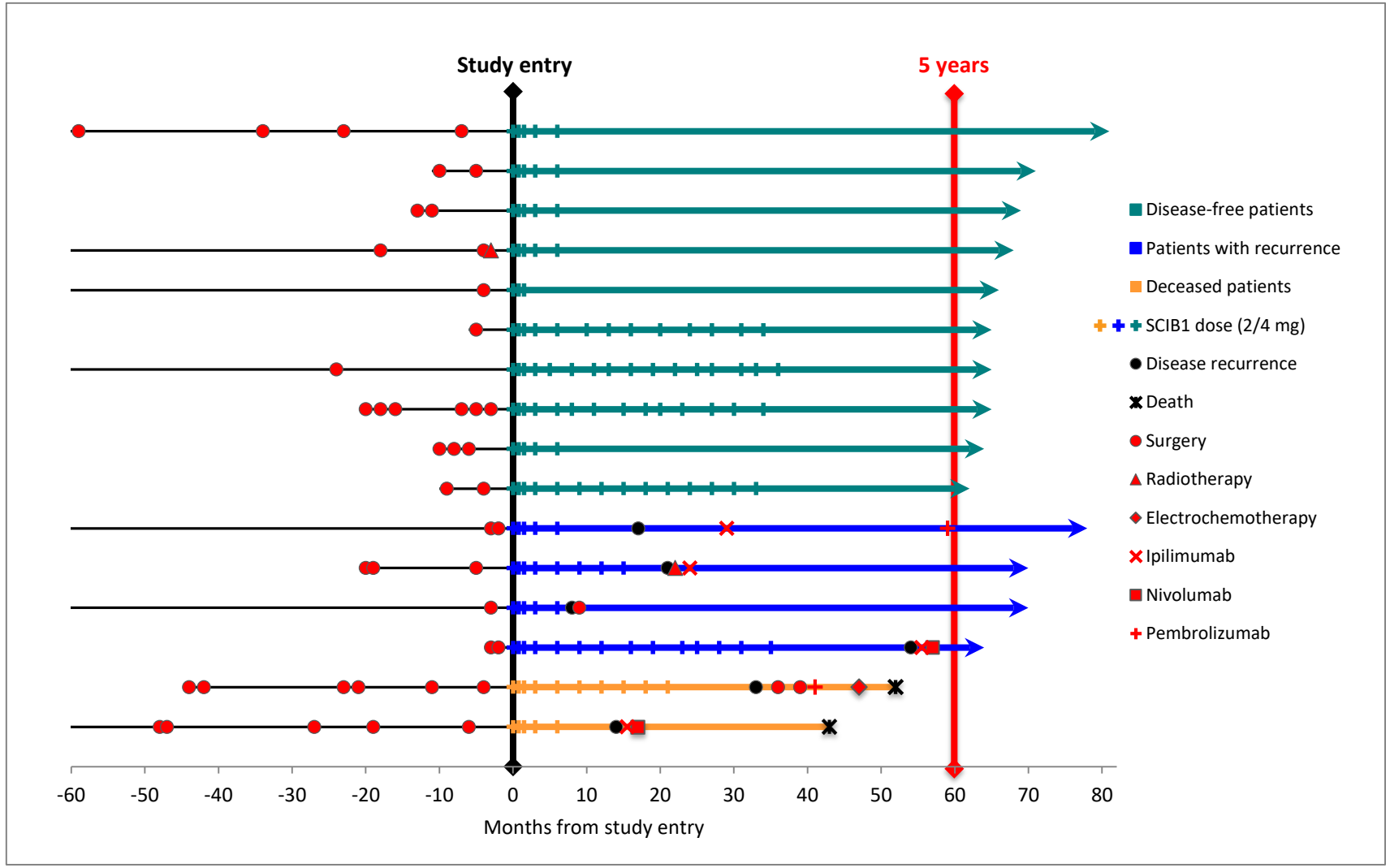


SURVIVAL IN RESECTED PATIENTS

- Overall survival with SCIB1 treatment superior to historical survival rates
- 14 of 16 resected patients receiving 2-4 mg doses have survived for more than 5 years (February 2018)
- Melanoma recurrence rates are lower in SCIB1-treated patients than historical controls



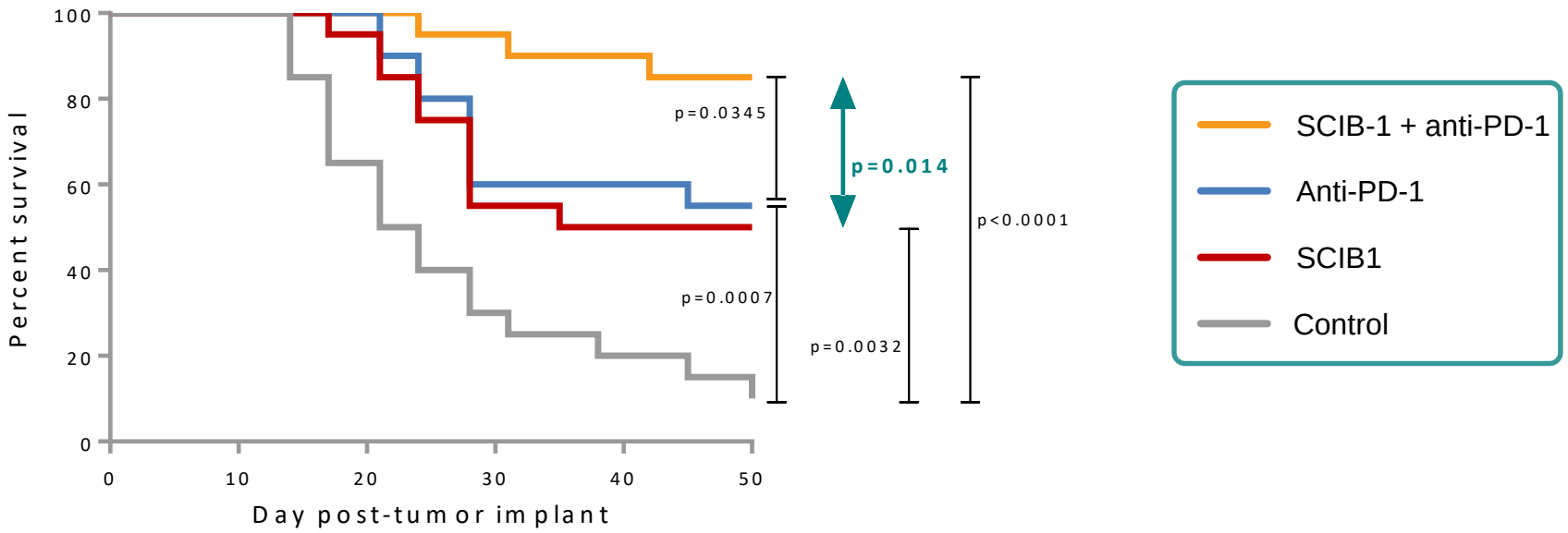
PATIENTS WITHOUT TUMOUR PRESENT AT STUDY ENTRY



SCIB1 BOOSTS IMMUNE CHECKPOINT THERAPY

IN A MOUSE MELANOMA MODEL, SURVIVAL RATES WERE SIGNIFICANTLY BOOSTED WHEN ANTI-PD-1 THERAPY WAS COMBINED WITH SCIB1 TREATMENT

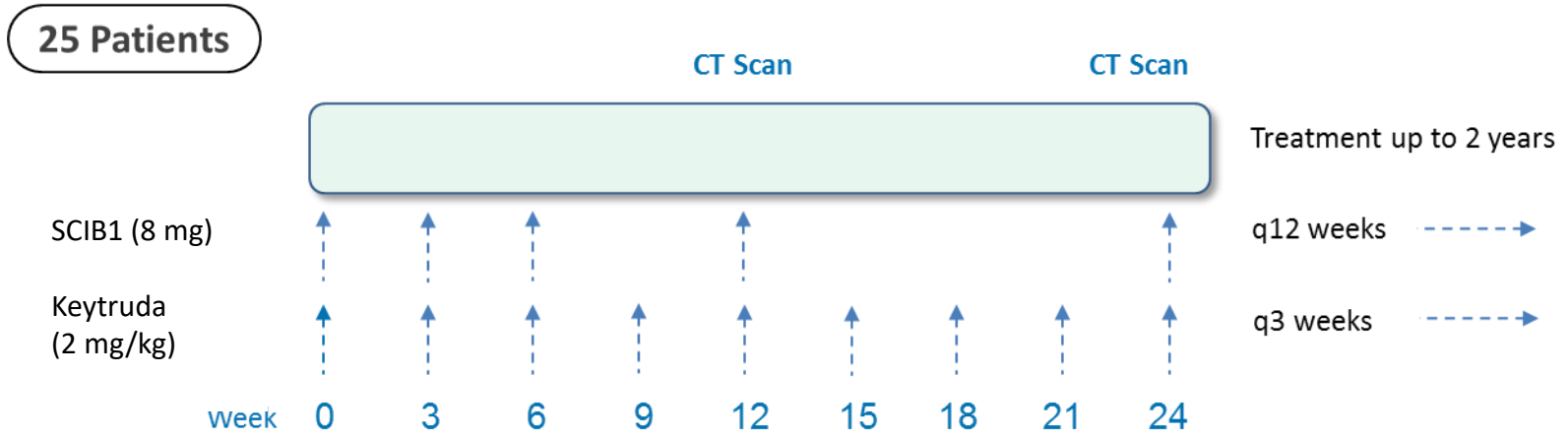
- Survival rates for SCIB1 ImmunoBody® monotherapy ≈ anti-PD-1
- Monotherapy viable option for resected melanoma patients
- Combination therapy resulted in an 85% survival rate
- SCIB1 also upregulates PD-L1 expression and memory response



SCIB1 PLUS CHECKPOINT INHIBITOR COMBINATION PHASE 2 STUDY DESIGN

PATIENT POPULATION

- Histologically confirmed, unresectable AJCC stage III or stage IV melanoma
- No prior systemic treatment for advanced disease
- Suitable for treatment with Keytruda (pembrolizumab), with measurable disease
- Part 1 – safety run-in (n=6); Part 2 – additional 19 patients; total = 25 patients



Trigger to advance development ≥12 RECIST responses in 25 patients

Assumptions

- Response rate to Keytruda = 30%
- Response rate of interest for combination = 55%

SCIB1 IND REVIEW PROCESS

- IND submitted ✓
- Reviewed by FDA ✓
  - SCIB1 clinical and toxicology questions answered during review process
  - CMC questions under control ✓
- Ichor TriGrid v2.0 device Master File
  - Device-specific questions
  - Responses being prepared by Ichor in consultation with Scancell

ichor medical systems

- Complete response required for review by FDA
- Continue to plan for study start in UK and US, subject to regulatory approval ✓
- Studies in China in patients with mucosal melanoma?

IDENTIFIED OPPORTUNITIES IN A RANGE OF TREATMENT SETTINGS

IMMUNOBODY®

SCIB1

- In combination with checkpoint inhibitors in patients with late stage disease to increase efficacy without compromising safety
- As monotherapy in patients with resected disease (adjuvant setting) to delay or prevent recurrence

SCIB2

- Lung cancer huge unmet medical need; deaths per year greater than melanoma, colon, breast and prostate cancers combined
- Checkpoint inhibitors less effective in lung cancer, with 80% of patients requiring a better SOC

MODITOPE®

Modi-1 & Modi-2

- siPTM vaccine class
- Innovative mechanism of action potentially targets all solid tumours
- Modi-1 and Modi-2 will target tumours that are unresponsive to existing immunotherapy (turning “cold” tumours to “hot”)
- Identification of Modi-specific TCRs provides a novel pathway for CD4-based TCR therapy

ANTICIPATED NEWSFLOW + MILESTONES CY19

IMMUNOBODY®

SCIB1

- SCIB1/checkpoint inhibitor Phase 2 US/UK combination study in late stage melanoma, planned to start 1H19, subject to regulatory submissions

SCIB2

- CRUK development activities for initiation of SCIB2 Phase 1/2 study for NSCLC

MODITOPE®

Modi-1

- Preparation for the First-In-Human study with Modi-1 in patients with TNBC, ovarian cancer and sarcoma planned to start CY19
- Identification of Modi-specific TCRs in collaboration with BioNTech

Modi-2

- Pre-clinical development for multiple solid tumour indications
- Extension of patent portfolio

FUTURE VALUE DRIVERS

2 PLATFORMS, 4 LEAD PRODUCTS + 5 CORE ACTIVITIES

CLINICAL DATA	▶ Generate meaningful clinical data to address unmet needs: clinical read-outs (SCIB1 Phase 2 & Modi-1 Phase1/2 pt 1) anticipated in next 2 years
PIPELINE EXPANSION	▶ Extend utility of Moditope platform beyond Modi-1 and Modi-2 in association with key industry players e.g., TCRs ▶ Lead generation and optimisation of anti-glycan mAbs
GLOBAL EXPANSION	▶ Extend clinical trial footprint to US in 2019 ▶ Explore partnerships in China (financial and commercial)
CLINICAL PARTNERSHIPS	▶ Establish relationships with key opinion leaders and clinical networks to ensure utility in clinical practice e.g., CRUK and patient advocacy groups
INDUSTRY PARTNERSHIPS	▶ Explore synergies with large Pharma/Biotech companies in identifying combination therapies for optimal outcomes e.g., checkpoint inhibitors

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